

IMPACT OF DEVALUATION ON BALANCE OF TRADE: A CASE STUDY OF PAKISTAN ECONOMY



Zeeshan Khan¹⁺

Asghar Ali²

Shahid Ali³

¹*MPhil Scholar, Pakistan institute of Development Economics (PIDE), Pakistan*

²*PhD Scholar, School of Economics, Jilin University, China & Staff Economist, Applied Economics Research Centre, University of Karachi*

³*Lecturer in Economics, Department of Economics and Development Studies, University of Swat, Pakistan*

(+ Corresponding author)

ABSTRACT

Article History

Received: 11 February 2016

Revised: 11 March 2016

Accepted: 15 March 2016

Published: 19 March 2016

Keywords

Devaluation

Balance of trade

Pakistan ARDL

This study investigates the impact of devaluation on balance of trade and on the External Debt, in case of Pakistan, over the period of 1980 to 2014. The key focus of this study is to check the long run relationship among devaluation of domestic currency on Pakistan Balance of Trade and External Debt, over the period of 1980 to 2014. Further, this study also examines the short run relationship between these two variables. Moreover, this study tests the validity of J-curve in case of Pakistan. In order to examine the long run relationship between devaluation of domestic currency and balance of trade in the presence of control variables, this study uses ARDL (Autoregressive distributed lag model) econometric technique. For short run relationship between devaluation of domestic currency and balance of trade, this study uses ECM (Error Correction Mechanism). This study will recommend improved policy recommendations that whether devaluation should be carried out or not. Thus, this paper will certainly benefit the policy makers in Pakistan to deal with Exchange rates in the context of international trade and also to deal with external debt in this regards.

Contribution/ Originality: The study is an attempt to investigate the impact of devaluation on balance of trade and on the External Debt, in case of Pakistan, over the period of 1980 to 2014. The study contributes in the existing literature by using uses advance econometric technique such as ARDL (Autoregressive distributed lag model). The study is one of the few studies, which have investigated the issue under consideration for the period of 1980 to 2014 and its results are policy oriented. The paper's primary contribution is finding the absence of J-curve in case Pakistan, which provide a fruitful suggestion to the policy makers. Moreover, this study contribute to the existing literature by includes control variable after performing sensitivity analysis.

1. INTRODUCTION

The trade balance of a country depends upon voluminous aspects which contains exchange rate variations, monetary and fiscal policy, national and foreign income growth and supply shortage. Although, amongst these aspects, variation in exchange rate has been a significant feature in this study. Devaluation of domestic currency has been used as a major tool to overcome the issue of deficit in balance of trade by many Developing countries. Devaluation refers to the official decrease in the value of domestic currency in terms of foreign currency. It raises the local prices level of imports and decline the external prices of exports (Asif, 2011). The balance of payments crisis

arises after the real exchange rate is equivalent to the nominal exchange rate (Economists Paul Krugman and Maurice Obstfeld). The policy of devaluation of domestic currency is usually applied for adjusting the deficit in balance of trade and payment. Due to devaluation of the domestic currency exports of the country will boost up and hence leads to favorable situation of balance of payment which leads to high economic growth. However, devaluation of domestic currency may leads to capital flight as foreign investors will reluctant to invest, which would ultimately make it difficult to finance the current account deficit. If we look at the other hand Devaluation not only affects the balance of Trade but it also affects the External debt as well. If there is fall in the value of currency that will basically uplift the burden of debt as for that we have to pay more of debt for now than before. The issue of possible relation between exchange rate and Balance of trade is extensively studied by the academia, Researcher, Economist, Policy Makers and intellectuals (Khan, 1994; Asmamaw, 2008; Kalyoncu *et al.*, 2009; Petrović and Gligorić, 2009; Andersson and Styf, 2010; Asif, 2011; Khan *et al.*, 2012; Kwalingana *et al.*, 2012; Rahman *et al.*, 2012; Ogundipe *et al.*, 2013; Salmasi, 2013; Vijayakumar, 2014). However, the bulk of empirical studies have reached to a different solution regarding the effectiveness of devaluation. Several researchers such as (Petrović and Gligorić, 2009; Andersson and Styf, 2010; Asif, 2011; Salmasi, 2013) argued that devaluation significantly improved balance of trade. All of them concluded that devaluation will be helpful for the economy to gain benefit in balance of trade and reduce the deficit. In contrast numerous other researchers are against devaluation, through their respective empirical studies, are as follows: (Khan, 1994; Kalyoncu *et al.*, 2009; Khan *et al.*, 2012; Rahman *et al.*, 2012; Ogundipe *et al.*, 2013; Vijayakumar, 2014). They empirically concluded that it would not be useful to solve the deficit in balance of trade by using Devaluation.

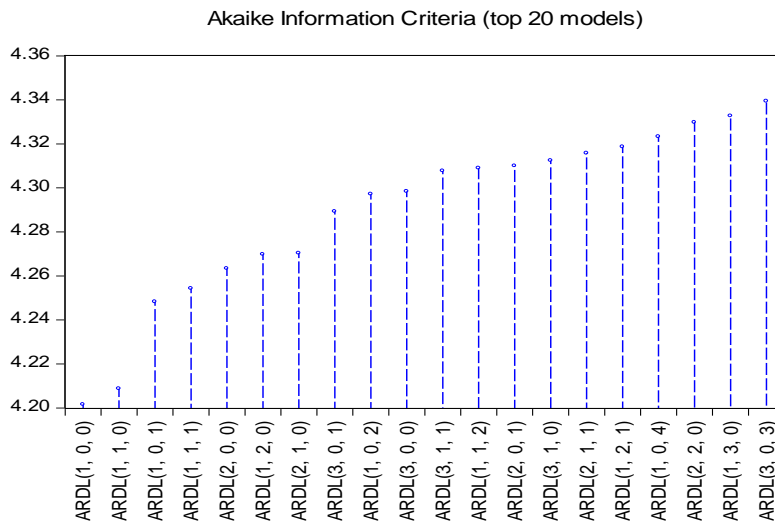
In case of Pakistan different studies have been carried out by different researchers, economist, Policy Makers and intellectuals they do have their own empirical conclusion. Asif (2011) through his empirical research concluded that Devaluation and j-curve holds in case of Pakistan trade balances. It has been considered useful for the economy. Through these studies one can conclude that devaluation should be used in case of Pakistan to alleviate the deficit in balance of trade. In contrast Khan (1994) argued that devaluation is not favorable in case of Pakistan. Rather it would further worsen the balance of trade deficit and government should also take other measures to cover up the gap between exports and imports. Pakistan has faced uncontrollable inflationary pressure owing to its first devaluation in 1955, resulting from a production structure which is inelastic in nature. A further devaluation of 56.7% in terms of gold with a fluctuating range 4.5% was introduced on 11th May, 1972, thus setting a unified rate of Rs.11 per US Dollar. On 8th January, 1982, the rupee was untied from the US Dollar along with obliteration of fixed official rate. Since January 8, 1972 Pakistan has adopted a managed float rate system which resulted in an exchange rate of Rs 9.9 per US Dollar relative to a trade weighted basket of currencies. Afterwards, the rupee is on a downward move against the US Dollar. An increase in imports in the 2 years period leads to the rise in retail prices in 1997 further devalue the domestic currency. The exchange rate was further devalued to Rs 64.1 in July 2001. The evident improvements in the economic indicators followed by lifting of sanctions stabilized the exchange rate during 2001 to 2006 remaining at a level of Rs 59-60 per US Dollar. But the stability was short lived, as the value of rupee decreased as rupee depreciated to Rs 63.40 per US Dollar in 2008. A provisional increase in exports can be achieved by devaluation if the foreign country's demand for exported goods is price elastic, otherwise devaluation will generate no fruits for the home country. The issue of devaluation and its impact on balance of trade has been studied by researcher and policy makers but so far there are contradictions in their views, some of them argue with the benefits and some are against devaluation. This research will contribute some new information for the existing literature in order to design a better policy recommendation to the policy makers. Numerous practical outcomes have been explored for developing countries containing Pakistan. The objective of this research is to explore the effects of devaluation on trade equilibrium in case of Pakistan over the period of 1980-2014. Further, this study examines the impact of Devaluation on External Debt for the period of 1980-2014.

2. MODEL SPECIFICATION, DATA AND METHODOLOGY

In order to find the long run and short run relationship between balance of trade, REER and ED, the econometrics technique which is Autoregressive Distributive lag Model (ARDL) has been used, as it is applicable, variables having stationary at level or at the first Difference i.e. I(0) and I(1). The very first step to run ARDL is basically to get the optimum lag selection for the model. Adjusted R-Square method has been used to select the optimum lags for the model.

$$TB_t = f(\text{REER}, \text{ED})$$

2.1. Model Selections Criteria's:



As we can clearly abstract from the above Graphs including Akaike Information Criteria (AIC) which shows that we should select that model with lag order of 3, 0, 3. This study uses the following econometric model in order to examine the relationship between devaluation and balance of trade in the presence of control variables.

$$\ln(TB_t) = \beta_0 + \beta_1 TB_{t-1} + \beta_2 \ln(REER_t) + \beta_3 \ln(ED_t) + \varepsilon_t \quad (1)$$

Where,

- TB: Trade Balances
- REER: Real Effective Exchange Rate
- ED: External Debt

Model (I) follows the selected optimum lags model by using Akaike Information Criteria (AIC).

2.2. Data

In order to find the long run association amongst the variables for the time series data has been taken from 1980-2014. The secondary data which would be processed in this empirical study have been taken from different sources, mainly State Bank of Pakistan (SBP), Pakistan bureau of Statistics, the Global Economy and Economic Survey of Pakistan database. The area which has been taken for under consideration is Pakistan. Econometrics Methodology which has been used in this empirical study is Autoregressive Distributed Lag Model (ARDL). These variables have been taken under study in this research are Trade balances which shows the difference between exports and imports, Real Effective Exchange rate (REER), Foreign Direct Investment (FDI) and External Debt (ED).

3. RESULTS AND DISCUSSION

In the first step the optimum lag is selected. The bound test Results from table 1, using bound test approach, shows that there exist long run relationship between balance of trade and currency devaluation in case of Pakistan. As the value of F-stats does not fall in both upper and lower bound values, which leads to reject the null hypothesis of “no long-run relationship among the variables”.

Table-1. Selection of the Optimum Lag:

Order	F-Statistics
2	8.41*

**Significant at 5 percent level.

The long run coefficients were obtained by using ARDL method, which indicates that there is a negative relationship between real effective exchange rate and balance of trade. If we devalue our currency by 1% the in balance of trade is worsening by 0.06%. The negative coefficient of real effective exchange rate indicates the absence of J-curve in case of Pakistan. These results clearly indicates that devaluation will disfavor trade balance in case of Pakistan. Our results are consistent with the findings of Oskooee and Cheema (2009); Shahbaz *et al.* (2010); Rahman *et al.* (2012); Hameed and Kanwal (2009) and Awan *et al.* (2012) as their empirical findings also suggest the absence of J-Curve not only in Pakistan but also in case of china, Italy, Korea, Kuwait, UAE, UK and Iran. Further, there is positive relationship between external debt and balance of trade, which is obvious from the significant positive coefficient of external debt variable. This model lacks the problem of autocorrelation, Heteroscedasticity and Multicollinearity. The overall model is highly significance as it can be seen through F-stats value.

Table-2. Estimated Long run Coefficients

Dependent Variable BOT	Selected Model: ARDL (1, 1, 0, 0)
Regressors	Coefficients
BOT(-1)	0.48*
REER	-0.067*
ED	0.26*
Constant	-8.03*
	R-Square = 0.91 Durbin Watson (DW) = 2.167 F-statistics = 53.65 Probability: 0.000

*, ** and *** demonstrate significant at 1, 5, and 10% level.

Table.3 shows that there exist short run relationship between currency devaluation and balance of trade as its value is significant. In the short run, real effective exchange rate negatively affects balance of trade. In the short run, external debt positively affect balance of trade. The values of λ (-1) is -0.47, which shows that 47% adjustment take place every year towards equilibrium.

Table-3. Estimated Short run Coefficients

Dependent Variable BOT	Selected Model: ARDL (1, 1, 0, 0)
Regressors	Coefficients
D(REER)	-0.03*
D(ED)	0.12*
λ (-1)	-0.47*

*, ** and *** demonstrate significant at 1, 5, and 10% level.

4. CONCLUSION AND POLICY RECOMMENDATIONS

In this empirical study, endeavor is made to find the relationship between and impact of devaluation on balance of trade by using ARDL over the period of 1980 to 2014. This study uses Balance of trade as dependent variable following real effective exchange rate as main variable and external debt, as explanatory variable. This study basically verified the long run relationship between balance of trade and currency devaluation, external debt. The negative coefficient of real effective exchange rate indicates the absence of J-curve in case of Pakistan. These results clearly indicates that devaluation will disfavor trade balance in case of Pakistan. Our results are consistent with the findings of Oskooee and Cheema (2009); Shahbaz *et al.* (2010); Rahman *et al.* (2012); Hameed and Kanwal (2009) and

Awan *et al.* (2012) as their empirical findings also suggest the absence of J-Curve not only in Pakistan but also in case of china, Italy, Korea, Kuwait, UAE, UK and Iran. Therefore, Based on the empirical findings, the policy of devaluation in case of Pakistan will not correct the deficit in balance of trade in case of Pakistan rather it will further worsen the conditions.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

REFERENCES

- Andersson, A. and S. Styf, 2010. How does a depreciation in the exchange rate affect trade over time? Bachelor's Thesis in Economics, Jonkoping International Business School, Jonkoping University. Available from: hj.diva-portal.org/smash/get/diva2:305957/FULLTEXT02.
- Asif, M., 2011. Devaluation and output growth: Evidence from Pakistan. *Mediterranean Journal of Social Sciences*, 2(2): 124-130.
- Asmamaw, H., 2008. The impact of devaluation on trade balances. University of Oslo, Master Thesis for the Master of Philosophy in Economics Degree.
- Awan, R.U., M. Shahbaz, F. Sher and K. Javed, 2012. Does J-curve phenomenon exist in Pakistan? A revisit. *Interdisciplinary Journal of Contemporary Research in Business*, 3(9): 1456-1467.
- Hameed, A. and S. Kanwal, 2009. Existence of a J-curve -The case of Pakistan. *Journal of Economic Cooperation and Development*, 30(2): 75-98.
- Kalyoncu, H., I. Ozturk, S. Artan and K. Kalyoncu, 2009. Devaluation and trade balance in Latin American countries. *Zbornik radova Ekonomskog fakulteta u Rijeci: Casopis za ekonomsku teoriju i praksu*, 27(1): 115-128.
- Khan, R.E.A., R. Sattar and H.U. Rehman, 2012. Effectiveness of exchange rate in Pakistan: Causality analysis. *Pakistan Journal Commerce Social Science*, 6(1): 83-96.
- Khan, S.R., 1994. Devaluation and the balance of trade in Pakistan: A policy analysis (Research Report No. 7). Islamabad: Sustainable Development Policy Institute.
- Kwalingana, S., K. Simwaka, T. Munthali and A. Chiumia, 2012. The short-run and long-run trade balance response to exchange rate changes in Malawi. *Journal of Development and Agricultural Economics*, 4(8): 221-232.
- Ogundipe, A.A., P. Ojeaga and O.M. Ogundipe, 2013. Estimating the long run effects of exchange rate devaluation on the trade balance of Nigeria. *European Scientific Journal*, 9(25): 233-249.
- Oskooee, B. and J. Cheema, 2009. Short-run and long-run effects of currency depreciation on the bilateral trade balance between Pakistan and her major trading partners. *Journal of Economic Development*, 34(1): 19-45.
- Petrović, P. and M. Gligorić, 2009. Exchange rate and trade balance: J-curve effect. University of Belgrade, Serbia, *Pano Economicus*: 23-41.
- Rahman, A., H.A. Iftikhar and A. Hafsa, 2012. Exchange rate, J-curve and debt burden of Pakistan. *Pakistan Economic and Social Review*, 50(1): 41-56.
- Salmasi, P.J., 2013. Short and long run effects of exchange rate on trade balance: An application of bound test. *Urmia University, World Applied Sciences Journal*, 21(11): 1609-1615.
- Shahbaz, M., A. Jalil and F. Islam, 2010. Real exchange rate changes and trade balance in Pakistan: A revisit. Munich Personal RePEc Archive (MPRA) Working Paper # 27631.
- Vijayakumar, S., 2014. Bilateral trade balance: Evidence from Malaysia. *Asian Economic Journal*, 25(2): 228-244.

Views and opinions expressed in this article are the views and opinions of the authors, Asian Journal of Economic Modelling shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.